航空交通管理 AIR TRAFFIC MANAGEMENT

航空交通管理部負責在國際民航組織指定的飛行情報區及負責區內提供航空交通管制、航行資料及飛機事故警報等服務。本部承諾實踐我們的使命宣言：*致力於安全及有效率的航空系統*。

I. 航空交通量

本部在年內共處理了181 545架次在香港國際機場升降的國際及本地航班，並為74 349架次飛越香港飛行情報區及負責區的航班提供服務 。與去年比較，在香港國際機場升降的航班及飛越香港的航班數目分別增加約2.1%和5%，這跟香港及東南亞與東北亞國家經濟情況有所改善有關。

自北跑道全面投入服務後，香港國際機場在一九九九年八月三十一日起開始雙跑道運作，跑道容量於一九九九年十月增至每小時40班次。取得運作經驗後，跑道容量於二零零零年三月進一步增加至每小時45班次。

II. 招聘及培訓航空交通管制人員

由於政府在一九九九年實施凍結招聘公務員的措施，年內只有10位新聘航空交通管制助理加入本部。截至二零零零年三月三十一日，本部共有236位航空交通管制主任及96位航空交通事務員。

本部繼續舉辦頻密的訓練活動。除有需要為在職航空交通管制人員提供定期和持續的培訓外，本部亦因應雙跑道運作模式的施行及公元二千年數位問題應變程序而為員工提供額外訓練。年內，本部為航空交通管制主任提供了45項專業課程和模擬器訓練，另為航空交通事務員提供了18項專業課程。

香港航空交通管制中心。
Hong Kong Air Traffic Control Centre.

致力提供安全而有效率的航空運輸系統
COMMITTED TO PROVIDE A SAFE AND EFFICIENT AIR TRANSPORT SYSTEM

The Air Traffic Management Division is responsible for the provision of air traffic control (ATC) service, flight information service and alerting service within the Hong Kong Flight Information Region (FIR) and Area of Responsibility (AOR) as assigned by the International Civil Aviation Organization (ICAO). The Division pledges to ensure that our mission statement is achieved: *Committed to a safe and efficient air transport system*.

I. AIR TRAFFIC

During the year, Air Traffic Management handled a total of 181 545 international and local aircraft movements at the Hong Kong International Airport (HKIA) and 74 349 flights overflying the Hong Kong FIR and AOR. Comparing with the previous year, the numbers of aircraft movements at the HKIA and overflights have increased by 2.1 per cent and 5 per cent respectively. The growth in air traffic was a result of the improved economic situations in Hong Kong as well as in the Southeast and Northeast Asian countries.

With the north runway fully operational, dual runway operation has commenced at the HKIA since August 31, 1999 and the runway capacity was accordingly increased to 40 movements per hour in October 1999. In light of operational experience, the capacity figure has been further increased to 45 movements per hour since March 2000.

II. RECRUITMENT AND TRAINING OF AIR TRAFFIC CONTROL PERSONNEL

民航處非常注重航空交通管制人員的持續培訓。
CAD attaches great importance to continuation training of ATC staff.

Owing to the general freeze in civil service recruitment in 1999, only 10 recruits joined the Division as Air Traffic Control Assistants during the year. As at March 31, 2000, the numbers of Air Traffic Control Officers (ATCO) and Air Traffic Flight Services Officers (ATFSO) were 236 and 96 respectively.

Training activities remained very intensive in the period. Apart from the need for regular ab-initio and continuation training of ATC staff, additional conversion training for dual runway operations and special training on the contingency procedures pertaining to the Year 2000 transition were also conducted. A total of 45 courses and simulator training sessions were provided to ATCOs and 18 training courses to ATFSOs.

III. 航空交通管理

為了確保珠江三角洲地區的航空交通服務安全及有效率，本處與國內及澳門的民航管理部門保持緊密聯繫和良好的合作關係。三方於年內舉行了兩次會議，以檢討和改善區內，包括香港、深圳、珠海及澳門各機場之間的空中交通管理整體計劃。基於會上達成的協議，香港和澳門部分飛行程序因應實際經驗而作出了改善。

IV. 無線電頻率干擾

為解決無線電頻率干擾航空交通管制頻率的問題，國內及香港的電訊、電子工程及航空交通管制專家聯合組成了一個專責小組，研究及制定長遠的應對策略，以消除航空通訊干擾。專責小組內亦設有一個日常工作組，以方便迅速交換資料，盡快探測、確認和消除干擾根源。

本港亦經常派出政府飛行服務隊定翼飛機在香港沿海地區作空中偵查飛行，並把收集到的資料與國內和香港地面無線電監測站紀錄作出比較和分析，以便追查干擾根源。

經過雙方緊密的聯繫和合作，多項有助改善香港空管頻道受干擾的措施已成功推行。

在一九九九年搜索及拯救演習上，政府飛行服務隊一架S-70 型直升機示範拯救傷者。
GFS S-70 performing a rescue demonstration in 1999 SAREX.

V. 搜索及救援

在一九九九年十一月三十日至十二月三日，本處舉行了每年一度之大型搜索及拯救演習。這項演習旨在測試香港搜救系統之效率，並為本地搜救組織人員提供一個上佳的機會，以練習執行和協調搜救行動，以及測試各搜救單位的通訊程序。除了民航處及其他本地搜救組織，包括中國人民解放軍駐香港部隊、香港警務處、海事處、消防處、政府飛行服務隊及民眾安全服務處外，海外搜救組織如美國空軍、海軍及海岸防衛隊都有參加是次演習。另外，國內、泰國、新加坡及澳門的搜救組織亦有派專家及觀察員到港。

本處在上述演習的首天，即十一月三十日舉行了一個搜救研討會，講者多達七位，有助與會人士交流及切磋搜救的經驗。此外，在十二月一日，一項短程野外及海上拯救示範於香港國際機場以南的鰲殼灣舉行，翌日則有一項長程搜索演習舉行，模擬直升機在南中國海失事，本地及海外搜救組織共派遣四架飛機及一艘船隻參與搜救。整個演習最終完滿結束，所有參與單位合作無間，並且獲益良多。

III. AIR TRAFFIC MANAGEMENT

In order to ensure the safe and efficient provision of air traffic services in the Pearl River Delta area, the Department continued to maintain close liaison and good cooperation with the civil aviation authorities in the Mainland and Macau. During the period, two tripartite meetings were conducted to review and improve the integrated air traffic management plan for all airports in the Pearl River Delta area, including Hong Kong, Shenzhen, Zhuhai and Macau. As a result of these meetings, some of the flight procedures for Hong Kong and Macau were refined in light of operational experience.

IV. RADIO FREQUENCY INTERFERENCE

To resolve the problem of radio frequency interference (RFI) affecting ATC frequencies, a working group comprising telecommunications, electronic engineering and ATC experts from the Mainland and Hong Kong was established to formulate related long term strategies. Under the working group, a task force was formed to facilitate rapid exchange of information for early detection, identification and eradication of RFI sources.

On a regular basis, fixed wing aircraft of the Government Flying Service were deployed to conduct RFI investigation flights along the coastal areas of Hong Kong. The data collected by these flights was used in conjunction with recordings from ground radio monitoring stations in the Mainland and Hong Kong to detect RFI sources.

The close liaison and cooperation between the Mainland and Hong Kong enabled the successful implementation of a number of measures to alleviate the impact of RFI on air-ground communications.

V. SEARCH AND RESCUE

The annual Search and Rescue (SAR) Exercise was successfully conducted between November 30 and December 3, 1999. The main objectives of this large scale exercise were to test the effectiveness of Hong Kong SAR system, to provide local SAR personnel with a good opportunity to practice their skills in conducting and coordinating SAR operation and to test the communication procedures between the various SAR units. In addition to the active participation by CAD and other local SAR agencies including the Hong Kong Garrison of the People's Liberation Army, Hong Kong Police Force, Marine Department, Fire Services Department, Government Flying Service and Civil Aid Service, overseas SAR units of the United States Air Force, Navy and Coast Guard also took part in the exercise. SAR specialists and observers from SAR organisations of the Mainland, Thailand, Singapore and Macau were present in the exercise.

空勤人員出席長程演習簡報會。
Aircrew briefing for the long-range exercise.

VI. 精密跑道監察系統

本處已完成安裝一套精密跑道監察系統，此乃以電子掃探方式運作的二次監視雷達系統，旨在監察進場着陸兩條平衡跑道的飛機，以提升機場容量和加強飛行安全。在惡劣天氣情況下，其功效尤為顯著。精密跑道監察系統由一組固定排列的天線組成，有別於慣常採用的雷達。新系統以每秒鐘一轉的高速作電子掃探，較傳統雷達更新飛機位置的速度快得多，因此可迅速在高解象彩色顯示屏準確展示飛機方位資料及預計飛機航道，並且顯示飛機轉變方向的情況，及時察覺飛機偏離航道的現象，以防出錯。此外，系統並可為航空交通管制員提供聲畫俱備的警報，讓他們能盡早糾正航空交通事件。該系統現正用作評估、協助制定飛行程序和訓練航空交通管制員，並預計於二零零零年稍後正式投入運作。

精密跑道監察系統現為美國聖路易和明尼亞波利斯-聖保羅機場，以及澳洲悉尼機場採用。香港國際機場是全球第四個裝設該系統的機場。

精密跑道監察系統監察飛機進場着陸機場兩條跑道的情況。
The Precision Runway Monitor (PRM) System monitors approaches to the two runways at the airport.

A SAR Symposium with seven technical presentations was held on November 30 so that participants could share their experience and exchange knowledge on SAR matters with each other. A short-range SAR exercise with a mountain and sea rescue demonstration was conducted on December 1 at Hau Hok Wan, the sea channel to the south of the HKIA. In the long-range SAR exercise held on December 2, a total of four aircraft and one vessel from local and overseas SAR units participated in the search for a simulated lost helicopter in the South China Sea. The exercise was successfully conducted with fruitful results and excellent cooperation amongst the participating units.

民航處副處長歐鏡源獲中國人民解放軍駐香港部隊空軍上校張輝燁頒發紀念盾。
Mr Alex Au, Deputy Director of Civil Aviation recived a memento from Colonel Zheng Hui-ye, PLA Airforce of Hong Kong Garrison.

VI. PRECISION RUNWAY MONITOR (PRM)

The Precision Runway Monitor (PRM) System is an electronic scan monopulse Secondary Surveillance Radar (SSR) system designed to monitor approaches to parallel runways for increasing airport capacity and enhancing flight safety, particularly under inclement weather conditions. The antenna of the PRM consists of a fixed phase array system instead of a turning radar head. It scans electronically at a rate of one revolution per second, much faster than the update rate of a conventional radar. As a result, the system is capable of showing accurate aircraft positions together with their projected tracks and position vectors on high resolution colour displays. It also reveals aircraft turns as they occur, detects course deviations, predicts blunders before they happen, and provides audible and visual alerts to air traffic controllers to resolve air traffic conflicts. The equipment is being used for evaluation and establishment of flight procedures as well as training of air traffic controllers. It is expected that the new system would be put into operational use in the latter part of 2000.

精密跑道監察系統由一組固定排列的天線組成。
The antenna of the PRM consists of a fixed phase array system.

The PRM System is currently being used at St. Louis and Minneapolis – St. Pauls airports in USA, as well as Sydney Airport in Australia. The HKIA is the fourth airport in the world to install such a system.